



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

**Note to Reader**

**Background:** As part of its effort to involve the public in the implementation of the Food Quality Protection Act of 1996 (FQPA), which is designed to ensure that the United States continues to have the safest and most abundant food supply. EPA is undertaking an effort to open public dockets on the organophosphate pesticides. These dockets will make available to all interested parties documents that were developed as part of the U.S. Environmental Protection Agency's process for making reregistration eligibility decisions and tolerance reassessments consistent with FQPA. The dockets include preliminary health assessments and, where available, ecological risk assessments conducted by EPA, rebuttals or corrections to the risk assessments submitted by chemical registrants, and the Agency's response to the registrants' submissions.

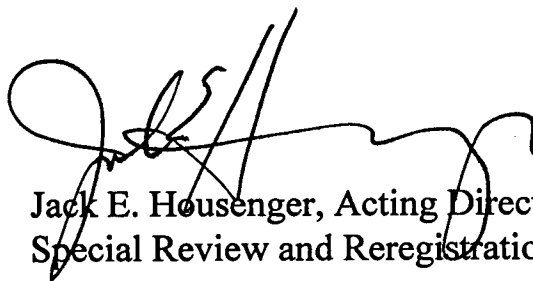
The analyses contained in this docket are preliminary in nature and represent the information available to EPA at the time they were prepared. Additional information may have been submitted to EPA which has not yet been incorporated into these analyses, and registrants or others may be developing relevant information. It's common and appropriate that new information and analyses will be used to revise and refine the evaluations contained in these dockets to make them more comprehensive and realistic. The Agency cautions against premature conclusions based on these preliminary assessments and against any use of information contained in these documents out of their full context. Throughout this process, If unacceptable risks are identified, EPA will act to reduce or eliminate the risks.

There is a 60 day comment period in which the public and all interested parties are invited to submit comments on the information in this docket. Comments should directly relate to this organophosphate and to the information and issues available in the information docket. Once the comment period closes, EPA will review all comments and revise the risk assessments, as necessary.

These preliminary risk assessments represent an early stage in the process by which EPA is evaluating the regulatory requirements applicable to existing pesticides. Through this opportunity for notice and comment, the Agency hopes to advance the openness and scientific soundness underpinning its decisions. This process is designed to assure that America continues to enjoy the safest and most abundant food supply. Through implementation of EPA's tolerance reassessment program under the Food Quality Protection Act, the food supply will become even safer. Leading health experts recommend that all people eat a wide variety of foods, including at least five servings of fruits and vegetables a day.

**Note:** This sheet is provided to help the reader understand how refined and developed the pesticide file is as of the date prepared, what if any changes have occurred recently, and what new information, if any, is expected to be included in the analysis before decisions are made. **It is not meant to be a summary of all current information regarding the chemical.** Rather, the sheet provides some context to better understand the substantive material in the docket ( RED chapters, registrant rebuttals, Agency responses to rebuttals, etc.) for this pesticide.

Further, in some cases, differences may be noted between the RED chapters and the Agency's comprehensive reports on the hazard identification information and safety factors for all organophosphates. In these cases, information in the comprehensive reports is the most current and will, barring the submission of more data that the Agency finds useful, be used in the risk assessments.

A handwritten signature in black ink, appearing to read 'J. Housenger', is written over the typed name and title.

Jack E. Housenger, Acting Director  
Special Review and Reregistration Division



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCES

MEMORANDUM

May 28, 1999

SUBJECT: **Chlorpyrifos:** Status of HED-Related Dow AgroSciences Study Submissions that Impact the HED Preliminary Risk Assessment. Chemical No. 059101.

FROM: Deborah C. Smegal, M.P.H, Toxicologist/Risk Assessor  
Re-Registration Branch 3  
Health Effects Division (7509C)

THROUGH: Steven Knizner, M.S. Senior Scientist  
Re-Registration Branch 3  
Health Effects Division (7509C)

TO: Mark Hartman  
Reregistration Branch  
Special Review and Reregistration Division (7508W)

Attached is a status summary of the Dow AgroSciences studies identified in the August 24, 1998 letter to Fred Hansen and Richard Rominger, and the HED-related studies identified in January 4, 1999 letter to Susan Wayland. In addition, the table contains a status summary of HED-related studies submitted in 1999, many of which have been evaluated and incorporated into the preliminary risk assessment.

**STATUS SUMMARY OF HED-RELATED DOW AGROSCIENCES STUDY SUBMISSIONS THAT IMPACT THE  
PRELIMINARY RISK ASSESSMENT FOR CHLORPYRIFOS**

<b>Date Submitted</b>	<b>Study Title</b>	<b>MRID Number</b>	<b>EPA Review Status</b>
<b>Status of Dow AgroSciences Studies cited in the August 24, 1998 Letter to Fred Hansen and Richard Rominger</b>			
(1) 9/17/93	Chlorpyrifos: 13-week Neurotoxicity Study in Fischer 344 Rats	42929801	Review complete, discussed in Toxicology Chapter of preliminary risk assessment for chlorpyrifos (memo from D. Smegal to M. Hartman, 5/6/99, D255714).
(2) 11/16/93	Chlorpyrifos: Exposure to Adults and Children upon Reentry to Domestic Lawns, following treatment with a chlorpyrifos-based mixture	43013501	Review complete (See HED "Review of Study Measuring Environmental Levels of and Exposure to Chlorpyrifos following Lawn Care Treatment" June 17, 1997). The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Occupational/Residential Handler and Postapplication Residential Risk Assessment for Chlorpyrifos attachment (memo from D. Smegal/T. Leighton to M. Hartman, May 27, 1999, D254880).
(3) 12/6/93	Chlorpyrifos: Exposure Assessment for Adults and Children Entering and Playing on Lawns Treated with Dursban Turf Insecticide	43042001	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Occupational/Residential Handler and Postapplication Residential Risk Assessment for Chlorpyrifos attachment (memo from D. Smegal/T. Leighton to M. Hartman, May 27, 1999, D254880). Review included in Review for the study above (See HED "Review of Study Measuring Environmental Levels of and Exposure to Chlorpyrifos following Lawn Care Treatment" June 17, 1997).
(4) 1/1/94	Chlorpyrifos: Range Finding (Pilot) Subchronic Neurotoxicity Study in Rats	43426601	Incomplete study submission. Study submitted in inappropriate format (summary without data).
(5) 12/9/94	Interpretation of Chlorpyrifos Incident Exposure Data	43480001	This submission is discussed in the attachment to the preliminary risk assessment for chlorpyrifos (5/28/99), memorandum from J. Blondell to D. Smegal, April 16, 1999 "Chlorpyrifos incident review update: DP Barcode 254977, Chem No. 059101. HED Review of MRID nos. 43480001, 44039901, 44186301, 44245801, 1997 Epidemiology Blue Ribbon Panel Report, and 1995 critique of EPA's review of neuropathy allegations due to chlorpyrifos."

<b>Date Submitted</b>	<b>Study Title</b>	<b>MRID Number</b>	<b>EPA Review Status</b>
(6) 3/20/95	Critical Analysis of the Allegations of Neuropathy Due to Chlorpyrifos Submitted to the United States Environmental Protection Agency on November 7, 1994		This submission is discussed in the attachment to the preliminary risk assessment for chlorpyrifos (5/28/99), memorandum from J. Blondell to D. Smegal, April 16, 1999 "Chlorpyrifos incident review update: DP Barcode 254977, Chem No. 059101. HED Review of MRID nos. 43480001, 44039901, 44186301, 44245801, 1997 Epidemiology Blue Ribbon Panel Report, and 1995 critique of EPA's review of neuropathy allegations due to chlorpyrifos."
(7) 5/21/96	Chlorpyrifos: Cognitive Study in Adult Long-Evans Rats	44020901	Review complete, discussed in Toxicology Chapter of preliminary risk assessment for chlorpyrifos (memo from D. Smegal to M. Hartman, 5/6/99, D255714).
(8) 9/5/96	Chlorpyrifos Integrated Exposure Assessment	44104001	This submission is discussed in the preliminary risk assessment for chlorpyrifos (5/28/99), and is in internal HED review, because the Agency policy on aggregate probabilistic risk assessment is still in development. This submission, however, has been used by the Agency in developing policy and will be evaluated once this policy is finalized and has undergone peer review.
(9) 11/26/96	Chlorpyrifos: Exposure to Adult and Children Upon Re-Entry to Domestic Lawns, Following Treatment with a Chlorpyrifos Based Granular Insecticide	44167101	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Occupational/Residential Handler and Postapplication Residential Risk Assessment for Chlorpyrifos attachment (memo from D. Smegal/T. Leighton to M. Hartman, May 27, 1999, D254880).
(10) 12/24/96	Critical Review of Allegations Associating Dursban with Human Teratogenicity	44186301	This submission is discussed in the attachment to the preliminary risk assessment for chlorpyrifos (5/28/99), memorandum from J. Blondell to D. Smegal, April 16, 1999 "Chlorpyrifos incident review update: DP Barcode 254977, Chem No. 059101. HED Review of MRID nos. 43480001, 44039901, 44186301, 44245801, 1997 Epidemiology Blue Ribbon Panel Report, and 1995 critique of EPA's review of neuropathy allegations due to chlorpyrifos." In addition, a partial review focusing on the toxicology studies is available. See HED Memorandum entitled "Chlorpyrifos - Toxicology's Comments Regarding Animal Studies Referenced in the Document Titled "Critical Review of Allegations Associating Dursban with Human Teratogenicity" Submitted by DowElanco".

<b>Date Submitted</b>	<b>Study Title</b>	<b>MRID Number</b>	<b>EPA Review Status</b>
(11) 3/31/97	Critical Assessment of Report Entitled "Review of Chlorpyrifos Poisoning Data" (By J. Blondell and V. Dobozy, January 14, 1997)	44245801	This submission is discussed in the attachment to the preliminary risk assessment for chlorpyrifos (5/28/99), memorandum from J. Blondell to D. Smegal, April 16, 1999 "Chlorpyrifos incident review update: DP Barcode 254977, Chem No. 059101. HED Review of MRID nos. 43480001, 44039901, 44186301, 44245801, 1997 Epidemiology Blue Ribbon Panel Report, and 1995 critique of EPA's review of neuropathy allegations due to chlorpyrifos."
(12) 5/8/97	Proposed Reference Dose (RfD) for Acute and Chronic Exposure to Chlorpyrifos Based on the Criteria Described by the Acute Cholinesterase Risk Assessment Task Force and the Available Animal and Human Data	44271001	Reviewed and discussed in February 2, 1998 Memorandum entitled "Chlorpyrifos - FQPA Requirement - Report of the Hazard Identification Assessment Review Committee".
(13) 5/13/97	Chlorpyrifos: Evaluation of Single Oral Doses on Cholinesterase and Neurotoxic Esterase (NTE) Inhibition in F344 Rats	44273901	Review complete, discussed in Toxicology Chapter of preliminary risk assessment for chlorpyrifos (memo from D. Smegal to M. Hartman, 5/6/99, D255714).
(14) 7/22/97	Proposed Retreatment Interval for Chlorpyrifos-Containing Products Used for Indoor Pest Control	44331901	The submission is discussed in the Occupational/Residential Handler and Postapplication Residential Risk Assessment for Chlorpyrifos attachment (memo from D. Smegal/T. Leighton to M. Hartman, May 27, 1999) of the preliminary risk assessment for chlorpyrifos (5/28/99). HED has completed a review of this submission, memo from D. Smegal to M. Hartman, D242444, December 3, 1998. HED has requested additional information from the registrant to support a 7 day re-treatment interval.
(15) 10/13/97	Tier III Acute Dietary Risk Assessment for Chlorpyrifos Using Chlorpyrifos National Food Survey Data	44403301	The data from this study are discussed in the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memorandum from C. Christensen and D. Soderberg to M. Hartman, April 27, 1999, D256120, "Acute Dietary Risk Assessment for Chlorpyrifos".
(16) 10/20/97	Chlorpyrifos Exposure and Human Health (Epidemiology Blue Ribbon Panel Report)		This submission is discussed in the attachment to the preliminary risk assessment for chlorpyrifos (5/28/99), memorandum from J. Blondell to D. Smegal, April 16, 1999 "Chlorpyrifos incident review update: DP Barcode 254977, Chem No. 059191. HED Review of MRID nos. 4348001, 44039901, 44186301, 44245801, 1997 Epidemiology Blue Ribbon Panel Report, and 1995 critique of EPA's review of neuropathy allegations due to chlorpyrifos."

<b>Date Submitted</b>	<b>Study Title</b>	<b>MRID Number</b>	<b>EPA Review Status</b>
(16) 12/11/97	Final Report of Chlorpyrifos Reference Dose Data Review Panel		The conclusions of this report are identical to those presented in the 5/8/97 "Proposed RfD for Acute and Chronic Exposure to Chlorpyrifos Based on the Criteria Described by the Acute Cholinesterase Risk Assessment Task Force and the Available Animal and Human Data.". The agency has reviewed and discussed the key issues raised by the Registrant that impact the derivation of the acute and chronic RfDs in February 2, 1998 Memorandum entitled "Chlorpyrifos - FQPA Requirement - Report of the Hazard Identification Assessment Review Committee".
(17) 1/8/98	Residential Exposure to Chlorpyrifos from Reentry to Structures Treated with Crack and Crevice and Spot Applications of Dursban Pro	44458201	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Occupational/Residential Handler and Postapplication Residential Risk Assessment for Chlorpyrifos attachment (memo from D. Smegal/T. Leighton to M. Hartman, May 27, 1999).
(18) 3/13/98	Evaluation of Chlorpyrifos in an <i>in vitro</i> Chromosomal Aberration Assay Utilizing Rat Lymphocytes	44533401	Review complete, discussed in Toxicology Chapter of preliminary risk assessment for chlorpyrifos (memo from D. Smegal to M. Hartman, 5/6/99, D255714).
(19) 5/12/98	Developmental Neurotoxicity Study of Chlorpyrifos Administered Orally via Gavage to Crl:CDBR VAF/Plus Presumed Pregnant Rats	44556901	Review complete, discussed in Toxicology Chapter of preliminary risk assessment for chlorpyrifos (memo from D. Smegal to M. Hartman, 5/6/99, D255714).
<b>Status of HED-Related Dow AgroSciences Studies cited in the January 4, 1999 Letter to Susan Wayland</b>			
(20) 10/19/93	Chlorpyrifos: An Exposure Assessment of Workers Associated with Mixing/Loading, Application and Reentry Following Ground Boom Application to Low Crops	42994401	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memo from T. Leighton to D. Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos. HED has completed a review of this study, memo from T. Leighton to D. Smegal/M. Hartman, D253134, February 15, 1999. This is an exposure assessment of MRID 42974501.

<b>Date Submitted</b>	<b>Study Title</b>	<b>MRID Number</b>	<b>EPA Review Status</b>
(21) 12/20/03	Worker Reentry Exposures to Chlorpyrifos in Citrus Treated with Lorsban 4E Insecticide	43062701	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memo from T. Leighton to D.Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos. HED has completed a review of this study, memo from T. Leighton to D. Smegal/M. Hartman, D253740, March 1,1999.
(22) 11/16/93	Evaluation of Industrial Hygiene Monitoring DOWM 100863-HE90A for Determining Chlorpyrifos in Air During Applications of Chlorpyrifos Formulations	43013503	HED has completed a review of this study, memo from D. Smegal to M. Hartman, March 9, 1999. This study was also evaluated as part of DP Barcode: D197713, memo from D. Jaquith to L. Propst, June 17, 1996 "Review of study that measured environmental levels of and exposure to chlorpyrifos following lawn care treatment" (Study MRID 43013501, D253740). The monitoring methods evaluated in this lawn study were used to assess exposure following lawn treatment with Dursban Turf Insecticide (DTI). The results of the companion lawn treatment study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99).
(23) 11/23/93	Evaluation of Chlorpyrifos Exposures During Mixing/Loading and Application of Empire 20 Insecticide to Ornamental Plants in Commercial Greenhouses.	43027901	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memo from T. Leighton to D.Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos.
(24) 12/20/93	Chlorpyrifos: An Exposure Assessment of Reentry Workers Following Application in Citrus Crops	43062702	The data from this submission and MRID 43062701 were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memo from T. Leighton to D.Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos. HED has completed a review of this study, memo from T. Leighton to D. Smegal/M. Hartman, D199522, February 10, 1999. This study is an exposure/risk assessment conducted using the data in MRID 43062701.



<b>Date Submitted</b>	<b>Study Title</b>	<b>MRID Number</b>	<b>EPA Review Status</b>
(25) 2/23/94	Chlorpyrifos: An Exposure and Risk Assessment of Workers Associated with Air Blast Sprayer Application of Lorsban 4E to High Crops (Citrus)	43138101	This study is an exposure/risk assessment conducted using the data in MRID 43138102. The data from this submission and MRID 43138102 were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memo from T. Leighton to D.Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos. HED has completed a review of this study, memo from B. Kitchens to L. Propst, D200064, 1994.
(26) 2/23/94	Evaluation of the Potential Exposure of Workers to Chlorpyrifos During Mixing and Loading, Spray Application, Clean-up Procedures During the Treatment of Citrus Groves with Lorsban 4E Insecticide	43138102	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memo from T. Leighton to D.Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos. HED has completed a review of this study, memo from B. Kitchens to L. Propst, D200064, 1994.
(27) 10/19/93	Lorsban 4E and 50W Insecticides: Assessment of Chlorpyrifos Exposures to Applicators, Mixer/Loaders, and Reentry Personnel During and Following Application to Low Crops	42974501	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memo from T. Leighton to D.Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos. HED has completed two reviews of this study, memo from T. Leighton to D. Smegal/M. Hartman, D253135, February 15, 1999 (reentry portion) and D197281, February 10, 1999 (mixer/loader/applicator portion).
(28) 11/16/93	Dursban Turf Insecticide: Evaluation and Validation of Monitoring Methods for Assessing Worker Exposures	43013502	HED has completed a review of this study, memo from D. Smegal to M. Hartman, March 9, 1999. This study was also evaluated as part of DP Barcode: D197713, memo from D. Jaquith to L. Propst, June 17, 1996 "Review of study that measured environmental levels of and exposure to chlorpyrifos following lawn care treatment" (study RID 43013501, D253740) The monitoring methods evaluated in this study were used to assess exposure following lawn treatment with Dursban Turf Insecticide (DTI). The results of the companion lawn treatment study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99).

<b>Date Submitted</b>	<b>Study Title</b>	<b>MRID Number</b>	<b>EPA Review Status</b>
(29) 12/11/97	Determination of Exposure and Dose of General Pest Control Operators to Chlorpyrifos During Routine Applications of Dursban Pro Insecticide to Cracks/Crevices and Spots	44444801	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Occupational/Residential Handler and Postapplication Residential Risk Assessment for Chlorpyrifos attachment (memo from D. Smegal/T. Leighton to M. Hartman, May 27, 1999). HED has completed a review of this study, memo from D. Smegal to M. Hartman, D241777, and D241838, April 19, 1999
(30) 11/4/94	Residues of Chlorpyrifos in Pears After Treatment with Lorsban 50W--Chile, 1993-1994	43445601	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Revised Product and Residue Chemistry Chapters of the HED Chapter of the RED attachment (memo from S. Knizner to M. Hartman, May 25, 1999). HED has completed a review of this study, memo from N. Dodd to D. Edwards and B. Hazel, D209881, 10/2/95.
(31) 11/4/94	Residues of Chlorpyrifos in Peaches After Treatment with Lorsban 50W--Chile, 1993-1994	43445602	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Revised Product and Residue Chemistry Chapters of the HED Chapter of the RED attachment (memo from S. Knizner to M. Hartman, May 25, 1999). HED has completed a review of this study, memo from N. Dodd to D. Edwards and B. Hazel, D209880, 10/2/95.
(32) 11/4/94	Residues of Chlorpyrifos in Plum After Treatment with Lorsban 50W--Chile, 1993-1994	43445603	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Revised Product and Residue Chemistry Chapters of the HED Chapter of the RED attachment (memo from S. Knizner to M. Hartman, May 25, 1999). HED has completed a review of this study, memo from N. Dodd to D. Edwards and B. Hazel, D209880, 10/2/95.
(33) 12/6/93	Chlorpyrifos: An Exposure and Risk Assessment for Workers Loading and Applying Empire 20 Insecticide to Ornamentals in Greenhouses	43042002	This study is an exposure/risk assessment conducted using the data in MRID 43027901. The data from this submission and MRID 43027901 were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memo from T. Leighton to D.Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos.

<b>Date Submitted</b>	<b>Study Title</b>	<b>MRID Number</b>	<b>EPA Review Status</b>
(34) 2/5/98	Evaluation of Chlorpyrifos Exposures to Workers During Loading and Application of Lorsban 15G Granular Insecticide During Corn Planting	44483501	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memo from T. Leighton to D. Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos. HED has completed a review of this study, memo from T. Leighton to D. Smegal/M. Hartman, D243789, February 25, 1999.
(35) 6/25/98	Evaluation of Workers' Exposure to Chlorpyrifos During the Use of Dursban TC Termiticide Concentrate for Pre-Construction Termiticide Applications	44589001	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Occupational/Residential Handler and Postapplication Residential Risk Assessment for Chlorpyrifos attachment (memo from D. Smegal/T. Leighton to M. Hartman, May 27, 1999). HED has completed a review of this study, memo from J. Cruz to M. Hartman, D247635, May 24, 1999
(36) 9/4/98	Effects of Chlorpyrifos Administered via Gavage to CD Rats During Gestation and Lactation on Plasma, Erythrocyte, Heart and Brain Cholinesterase, and Analytical Determination of Chlorpyrifos and Metabolites	44648101	Review complete, discussed in Toxicology Chapter of preliminary risk assessment for chlorpyrifos (memo from D. Smegal to M. Hartman, 5/6/99, D255714).
(37) 7/17/95	Chronic and Acute Dietary Exposure Analyses for Chlorpyrifos	43721602	This study has been superceded by a more recent and refined Acute Dietary Monte Carlo Analysis submitted by Dow AgroSciences in January 13, 1999, and by a more refined chronic dietary analysis conducted by EPA in May 1999 that incorporates the most recent PDP and FDA data, in conjunction with the Dow market basket survey data.
(38) 6/20/96	An Update of the Morbidity Experience Among Employees Potentially Exposed to Chlorpyrifos	44039901	This submission is discussed in the attachment to the preliminary risk assessment for chlorpyrifos (5/28/99), memorandum from J. Blondell to D. Smegal, April 16, 1999 "Chlorpyrifos incident review update: DP Barcode 254977, Chem No. 059101. HED Review of MRID nos. 43480001, 44039901, 44186301, 44245801, 1997 Epidemiology Blue Ribbon Panel Report, and 1995 critique of EPA's review of neuropathy allegations due to chlorpyrifos."

Date Submitted	Study Title	MRID Number	EPA Review Status
<b>New Study Submissions Received in 1999</b>			
(39) 2/1/99	Exposure to Chlorpyrifos while applying a Ready to Use Formulation	44739301	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Occupational/Residential Handler and Postapplication Residential Risk Assessment for Chlorpyrifos attachment (memo from D. Smegal/T. Leighton to M. Hartman, May 27, 1999). HED has completed a review of this study, memo from D. Smegal to M. Hartman, D252733, April 29, 1999
(40) 2/1/99	Evaluation of Potential Exposures to Workers Mixing and Loading Lorsban 4E Insecticide Products for Aerial Applications	44739302	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the attached memo from T. Leighton to D.Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos. HED has completed a review of this study, memo from D. Smegal to M. Hartman, D252738, May 4, 1999.
(41) 1/20/99	Evaluation of Workers' Exposure to Chlorpyrifos During the Use of Dursban Pro Insecticide Concentrate for Broadcast Turf Applications	44729401	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Occupational/Residential Handler and Postapplication Residential Risk Assessment for Chlorpyrifos attachment (memo from D. Smegal/T. Leighton to M. Hartman, May 27, 1999). HED has completed a review of this study, memo from D. Smegal to M. Hartman, D252357, April 15, 1999
(42) 1/20/99	Evaluation of Workers' Exposures to Chlorpyrifos During the Use of Dursban TC Termiticide Concentrate for Post-Construction Termiticide Applications	44729402	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the Occupational/Residential Handler and Postapplication Residential Risk Assessment for Chlorpyrifos attachment (memo from D. Smegal/T. Leighton to M. Hartman, May 27, 1999). HED has completed a review of this study, memo from G. Bangs to M. Hartman/D. Smegal, D255669, May 11, 1999
(43) 2/16/99	Dissipation of Dislodgeable Foliar Residues of Chlorpyrifos from Treated Orchard Trees	44748101	The data from this study were incorporated into the preliminary risk assessment for chlorpyrifos (5/28/99), and are discussed in the memo from T. Leighton to D.Smegal/M. Hartman, May 28, 1999. D253985. Agricultural and Occupational Exposure Assessment and Recommendations for the Reregistration Eligibility Decision Document for Chlorpyrifos.

<b>Date Submitted</b>	<b>Study Title</b>	<b>MRID Number</b>	<b>EPA Review Status</b>
(44) 2/16/99	Dissipation of Dislodgeable Foliar Residues of Chlorpyrifos from Treated Cotton, Sugar Beets, and Sweet Corn Row Crops	44748102	HED has conducted a primary review of this study, and additional data analyses are underway prior to incorporation into the preliminary risk assessment for chlorpyrifos.
(45) 2/19/99	Memorandum from J. Maurissen and J. Mattsson to HED, containing additional data on the cognitive rat study, in response to HED's request	44020901 (additional data)	These data are discussed in Toxicology Chapter of preliminary risk assessment for chlorpyrifos (memo from D. Smegal to M. Hartman, 5/6/99, D255714). HED has reviewed this additional data submission, changed the study classification from unacceptable/non-guideline to acceptable/non-guideline and finalized the HED Data Evaluation Record for the study. (memo from J. Doherty to M. Hartman, D253432, May 3, 1999).
(46) 4/6/99	Developmental Neurotoxicity Study of Chlorpyrifos Administered Orally via Gavage to Crl:CD@BR VAF/Plus® Presumed Pregnant Rats	44787301	This submission is under review and will be incorporated into the revised preliminary risk assessment that is submitted for public comment. This study is mentioned in the preliminary risk assessment for chlorpyrifos as under going review (memo from D. Smegal to M. Hartman, 5/6/99, D255714).
(47) 4/27/99	A Rising Dose Toxicology Study to Determine the No-Observable-Effect-Levels (NOEL) for Erythrocyte Acetylcholinesterase (AChE) Inhibition and Cholinergic Signs and Symptoms of Chlorpyrifos at Three Dose Levels	44811002	Incomplete study submission, which is missing Appendices 7 (Analytical data for paraoxonase) and 8 (Analytical Data for Chlorpyrifos). HED has conducted a preliminary review of this study, and determined that the data in Appendices 7 and 8 are necessary for data evaluation. This study is mentioned in the preliminary risk assessment for chlorpyrifos (memo from D. Smegal to M. Hartman, 5/6/99, D255714). This study did not conduct plasma cholinesterase measurements.
(48) 5/4/99	Chlorpyrifos: Part B- in vitro Determination of A-Esterase Activity in Liver and Blood Towards Chlorpyrifos-Oxon.	44810701	This study is under review.
(49) 4/27/99	Dow AgroSciences's Response to the Report of the Hazard Identification Assessment Review Committee (HIARC) entitled "Chlorpyrifos-Hazard Identification Based on Animal Studies" Dated March 4, 1999	44811001	This submission is under review. All factual errors identified in this submission will be corrected in the revised preliminary risk assessment that is submitted for public comment.
(50) 5/13/99	Response to the crack and crevice and retreatment Data Evaluation Record.	No MRID	Under review by HED.

